

Amendments to the Specification:

Please replace paragraph 0001 with the following amended paragraph:

[0001] Priority is claimed to ~~provisional patent application serial no. 60/319,346, filed June 25, 2002 and to~~ provisional patent application serial no. 60/319,370, filed June 28, 2002.

Please replace paragraph 0002 with the following amended paragraph:

The present invention ~~related~~ relates, in general, to edible films and, more particularly, to pullulan-free edible film compositions containing cinnamaldehyde, and to methods of making the film compositions.

Please replace paragraph 0007 with the following amended paragraph:

The present invention relates to methods of freshening breath and oral cleansing. Furthermore, the present invention relates to the composition of, and methods of producing, an oral product. Specifically, the present invention relates to oral products ~~intended~~ having bacterial and breath freshening properties. More specifically, the present invention relates to a dentifrice, chewing gum, confection, lozenge, mouthwash, mouth spray or edible film containing an effective amount of essential oils which produce a synergistic effect of bacterial properties for oral cleansing and breath freshening, by which the inventive composition effectively inactivates or kills oral bacteria and freshens breath through the consumption of the dentifrice, chewing gum, confection, lozenge, mouthwash, mouth spray or edible film product.

Please replace paragraph 0017 with the following amended paragraph:

In vitro tests were conducted with three subgingival plaque bacteria associated with oral malodor. The MIC (Minimum Inhibitory Concentrations) study protocol is as follows. Chlorhexidine was used as a positive control and sterile water was used as a negative control. Cinnamic aldehyde (cinnamaldehyde) was suspended in 10% methanol. Cinnamic aldehyde appeared as a uniform suspension. ~~Nine-six~~ Nine six-well microtiter plates were used for this study. Each well contained 5×10^5 colony forming units/ml of bacteria, serially diluted agents and bacterial growth medium. All bacterial cultures were incubated at 37°C and

stationary. Bacterial growth was estimated spectrophotometrically at 660 nm, after 48 hours. The MIC for each test bacteria was defined as the minimum concentration of test compound limiting turbidity to < absorbance at 660 nm.

Please replace paragraph 0018 with the following amended paragraph:

The MBC (Minimum bactericidal concentrations) were determined using the ~~96~~ nine ~~six~~-well microtiter plate serial dilutions as described above for MIC studies. Serial dilution of cultures in wells showing no visible growth were performed and 10 microliters of culture were plated in triplicate on blood agar plates. Viable colonies were scored after incubation of the plates for 48 hours at 37°C. For each test bacterium, the number of CFU/ml were determined in the initial inoculum. The MBC was defined as the lowest concentration of a test compound that killed at least 99.9% of the cells present in the initial inoculum.

Please replace paragraph 0032 with the following amended paragraph:

In general, a chewing gum composition typically comprises a ~~waterbulk~~ water soluble ~~bulk~~ portion, a ~~waterchewable grams~~ water insoluble base portion and typically ~~waterflavoring~~ water soluble flavoring agents. The waterportion dissipates with a portion of the flavoring agent over a period of time during chewing. The gum base portion is retained in the mouth throughout the chew.

Please replace paragraph 0035 with the following amended paragraph:

Synthetic elastomers may include, but are not limited to, polyisobutylene with GPC weight average molecular weight of about 10,000 to about 95,000, isobutylene-isoprene copolymer (butyl elastomer), styrenecopolymers having styrene-butadiene ratios of about 1:3 to about 3:1, polyvinyl acetate having GPC weight average molecular weight of about 2,000 to about 90,000, polyisoprene, polyethylene, vinyl acetate vinyl laurate copolymer having a vinyl laurate content of about 5% to about 50% by weight of the copolymer, and combinations thereof.

Please replace paragraph 0036 with the following amended paragraph:

Preferred ranges for polyisobutylene are 50,000 to 80,000 GPC weight average molecular weight ~~and for styreneare~~ styrene 1:1 to 1:3 bound styrene, and for polyvinyl

acetate are 10,000 to 65,000 GBC weight average molecular weight with the higher molecular weight polyvinyl acetates typically used in bubble gum base, and for vinyl ~~acetate~~laurate ~~acetate~~ laurate, vinyl laurate content of 10.

Please replace paragraph 0038 with the following amended paragraph:

Elastomer plasticizers may include, but are not limited to, natural rosin esters such as glycerol esters or partially hydrogenated rosin, glycerol esters of polymerized rosin, glycerol esters of partially dimerized rosin, glycerol esters of rosin, pentaerythritol esters of partially hydrogenated rosin, methyl and partially hydrogenated methyl esters of rosin, pentaerythritol esters of rosin; synthetics such as terpene resins derived from alpha and beta pinene and/or any suitable combinations of the foregoing. The preferred elastomer plasticizers will also vary depending on the specific application, and on the type of elastomer which is used.

Please replace paragraph 0046 with the following amended paragraph:

High intensity artificial sweeteners can also be used, alone or in combination, with the above. Preferred sweeteners include, but are not limited to, sucralose, aspartame (APM), ~~NAPM~~ neopentyl- APM derivatives such as neotame, salts of acesulfame, altitame, saccharin and its salts, cyclamic acid and its salts, glycyrrhizinate, dihydrochalcones, thaumatin, monellin, and the like, alone or in combination. In order to provide longer lasting sweetness and flavor perception, it may be desirable to encapsulate or otherwise control the release of at least a portion of the artificial sweetener. Such techniques as wet granulation, wax granulation, spray drying, spray chilling, fluid bed coating, coacervation, and fiber extension may be used to achieve the desired release characteristics.

Please replace paragraph 0048 with the following amended paragraph:

If a low calorie gum is desired, a low caloric bulking agent can be used. Examples of low caloric bulking agents include: polydextrose; ~~Raftilose~~ raftilose, ~~Raftilin~~ raftilin; ~~Fructooligosaccharides~~ fructooligosaccharides (NutraFlora); Palatinose oligosaccharide; ~~Guar~~ guar ~~Gum~~ gum ~~Hydrolysate~~ hydrolysate (Sun Fiber); or indigestible dextrin (Fibersol). However, other low calorie bulking agents can be used.

Please replace paragraph 0049 with the following amended paragraph:

A variety of flavoring agents can also be used, if desired. The flavor can be used in amounts of about 0.1 to about 15 weight percent of the gum, and preferably, about 0.2% to about 5% by weight. Flavoring agents may include essential oils, synthetic flavors or mixtures thereof including, but not limited to, oils derived from plants and fruits such as citrus oils, fruit essences, peppermint oil, spearmint oil, other mint oils, clove oil, oil of wintergreen, anise and the like. Artificial flavoring agents and components may also be used. Natural and artificial flavoring agents may be combined in any sensorially acceptable fashion. Flavoring may include a cooling agent to enhance the flavor and perceived breath freshening of the product. Cooling agents include menthol, ethyl p-menthane carboxamide, N,2,3-trimethyl-2-isopropyl-butanamide, menthyl glutarate (Flavor Extract Manufacturing Association (FEMA 4006)), menthyl succinate, menthol PG carbonate, menthol EG carbonate, menthyl lactate, menthone glyceryl ketal, menthol glyceryl ether, N-tertbutyl-p-menthane-3-carboxamide, p-menthane-3-carboxylic acid glycerol ester, methyl-2-isopropyl-bicyclo (2.2.1), heptane-2-carboxamide, menthol methyl ether and combinations thereof.

Please replace paragraph 0050 with the following amended paragraph:

In addition, to the active ingredients of the present invention, additional active ingredients or medicaments may be added for various purposes. If the medicament or active ingredient is water soluble in the chewing gum, it preferably will include a base/emulsifier system which leads to the desired concentration of the medicament in the saliva (more hydrophilic balance). If the medicament or active ingredient is water insoluble, the chewing gum preferably includes a base/emulsifier system which leads to the desired concentration of the medicament in the saliva (more lipophilic balance).

Please replace paragraph 0053 with the following amended paragraph:

Anti-microbial essential oils and flavor components such as peppermint, methyl salicylate, thymol, eucalyptol, cinnamic aldehyde, polyphosphate, pyrophosphate and combinations thereof may be used.

Please replace paragraph 0054 with the following amended paragraph:

Dental health ingredients such as fluoride salts, phosphate salts, proteolytic enzymes, lipids, anti-microbials, calcium, electrolytes, protein additives, dental abrasives and combinations thereof may be used.

Please replace Table 3 with the following amended Table 3:

Table 3. Antimicrobial Thin Film Formulas (% by weight and Dry Basis)

Ingredient	Example 11	Example 12	Example 13	Example 14	Example 15
Water	11.00	10.00	10.00	10.00	10.00
Maltodextrin	26.00 <u>29.21</u>	23.23 <u>26.10</u>	24.56 <u>27.29</u>	25.96 <u>28.84</u>	23.00 <u>25.56</u>
Sodium Alginate	28.79 <u>32.58</u>	26.33 <u>29.58</u>	21.67 <u>24.08</u>	24.32 <u>27.02</u>	21.70 <u>24.11</u>
Carageenan	8.66 <u>9.73</u>	8.51 <u>9.56</u>	9.26 <u>10.29</u>	7.73 <u>8.59</u>	6.54 <u>7.27</u>
Microcrystalline Cellulose	8.75 <u>9.83</u>	7.02 <u>7.89</u>	9.12 <u>10.13</u>	9.56 <u>10.62</u>	6.58 <u>7.31</u>
Hydroxylated Lecithin	2.12 <u>2.38</u>	1.86 <u>2.09</u>	2.11 <u>2.34</u>	3.01 <u>3.34</u>	5.50 <u>6.11</u>
Glycerin	7.35 <u>8.26</u>	6.92 <u>7.78</u>	8.33 <u>9.26</u>	6.56 <u>7.29</u>	6.79 <u>7.54</u>
Menthol	2.40 <u>2.70</u>	-	-	1.05 <u>1.17</u>	-
Sucralose	3.13 <u>3.52</u>	3.08 <u>3.46</u>	4.42 <u>4.91</u>	-	-
High Intensity Sweetener	-	-	-	1.76 <u>1.96</u>	1.98 <u>2.20</u>
Cinnamic Aldehyde	1.75 <u>1.97</u>	12.00 <u>13.48</u>	10.48 <u>11.64</u>	10.00 <u>11.11</u>	17.15 <u>19.06</u>
Color	0.05 <u>0.06</u>	0.05 <u>0.06</u>	0.05 <u>0.06</u>	0.05 <u>0.06</u>	0.76 <u>0.84</u>
Total %	100.00	100.00	100.00	100.00	100.00

Please replace the Abstract with the following amended Abstract:

ABSTRACT OF THE DISCLOSURE

A pullulan-free edible film composition for oral cleansing, breath freshening, and anti-microbial benefits includes a film forming agent and cinnamaldehyde. In a treatment process, an effective amount of cinnamaldehyde is delivered to the oral cavity by the edible film for convenient oral cleansing and breath freshening benefits. A method of making the pullulan-free edible film composition includes forming an aqueous solution of film forming agents and cinnamaldehyde, and drying the aqueous solution to form a dry edible film.